WHAT IS CLAIMED IS:

1. A method of adding grant information to a memory having a plurality of physical addresses where each physical address identifies an arbitration period, the method comprising the steps of:

if grant information is to be added to the memory, determining a number of desired arbitration periods requested by a communication circuit;

assigning a range of logical addresses to the communication circuit, the number of logical addresses in the range being equal to the number of desired arbitration periods; and

forming a number of physical addresses by changing a number of the logical addresses in the range, each logical address having a corresponding physical address, a number of the physical addresses being spaced apart.

2. The method of claim 1 and further comprising the step of writing grant information for the communication circuit to the physical addresses that correspond with the logical addresses in the range.

3. The method of claim 2 wherein the memory has a logical address that represents a next available arbitration period and the range of logical addresses are sequential.

4. The method of claim 3 wherein a value that represents the logical address of the next available arbitration period is updated by adding the number of logical addresses in the range to a prior value that represented the logical address of the next available arbitration period when a range is defined.

5. The method of claim 4 wherein a first logical address of the range when the range is defined is the logical address of the next available arbitration period.

6. The method of claim 5 and further comprising the step of determining if grant information for a communication circuit is to be added to the priority table.

7. The method of claim 6 wherein the forming step further includes the steps of:

setting a least significant bit of a physical address to have a value equal to a most significant bit in a logical address; and

setting a first next to the least significant bit of the physical address to have a value equal to a first next to the most significant bit in the logical address.

8. The method of claim 7 and further comprising the step of setting a second next to the least significant bit of the physical address to have a value equal to a second next to the most significant bit in the logical address.

9. The method of claim 8 wherein access to a bus is granted to one of a plurality of requesting circuits, and further comprising the steps of:

determining a stored identity associated with the arbitration period, the stored identity identifying a communication circuit; and

determining whether any requesting communication circuit has an identity that matches the stored identity.

10. The method of claim 6 wherein the forming step further includes the steps of:

gray encoding a logical address to form an intermediate address;

setting a least significant bit of a physical address to have a value equal to a most significant bit in the intermediate address; and

setting a first next to the least significant bit of the physical address to have a value equal to a first next to the most significant bit in the intermediate address.

11. The method of claim 1 wherein the forming step further includes the steps of:

setting a least significant bit of a physical address to have a value equal to a most significant bit in a logical address; and

setting a first next to the least significant bit of the physical address to have a value equal to a first next to the most significant bit in the logical address.

12. The method of claim 11 and further comprising the step of setting a second next to the least significant bit of the physical address to have a value equal to a second next to the most significant bit in the logical address.

13. The method of claim 12 wherein access to a bus is granted to one of a plurality of requesting circuits, and further comprising the steps of:

determining a stored identity associated with the arbitration period, the stored identity identifying a communication circuit; and

determining whether any requesting communication circuit has an identity that matches the stored identity.

14. The method of claim 1 wherein the forming step further includes the steps of:

gray encoding a logical address to form an intermediate address;

setting a least significant bit of a physical address to have a value equal to a most significant bit in the intermediate address; and

setting a first next to the least significant bit of the physical address to have a value equal to a first next to the most significant bit in the intermediate address.

15. The method of claim 1 and further comprising the step of comparing the number of desired arbitration periods with a number of available arbitration periods, wherein the range of logical addresses is assigned to the communication circuit when the number of available arbitration periods is equal to or more than the number of desired arbitration periods.

16. A communications circuit comprising:

a transmit circuit that transmits information onto a bus;

a receive circuit that receives information from the bus;

a memory that has a plurality of physical addresses where each physical address identifies an arbitration period; and

a logic circuit connected to the transmit circuit, the receive circuit, and the memory, if grant information is to be added to the memory, the logic circuit determines a number of desired arbitration periods requested by a communication circuit, and assigns a range of logical addresses that identify the communication circuit, the number of logical addresses in the range being equal to the number of desired arbitration periods.

17. The communications circuit of claim 16 wherein the logic circuit forms a number of physical addresses by changing a number of the logical addresses in the range, each logical address having a corresponding physical address, a number of the physical addresses being spaced apart.

18. The communications circuit of claim 17 wherein the logic circuit forms the physical addresses by:

setting a least significant bit of a physical address to have a value equal to the most significant bit in a logical address; and

setting a first next to the least significant bit of the physical address to have a value equal to a first next to the most significant bit in the logical address.

19. The communications circuit of claim 17 wherein the logic circuit forms the physical addresses by:

gray encoding a logical address to form an intermediate address;

setting a least significant bit of a physical address to have a value equal to the most significant bit in the intermediate address; and

setting a first next to the least significant bit of the physical address to have a value equal to a first next to the most significant bit in the intermediate address.

20. The communications circuit of claim 19 wherein when a requesting communication circuit has an identity that matches a stored identity, the logic circuit identifies the requesting communication circuit as a matching communication circuit, reads a stored priority associated with the arbitration period, and determines whether a priority of the matching communication circuit matches the stored priority, the stored

priority indicating a priority level of a data cell of the communication circuit.

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